EXAMINER'S AMENDMENT. claims 1, 6, 10, 13 and 32-44 are amended.

Amendments to the Claims:

Please amend claims 1, 6, 10, 13, and 44 and please add claims 45-46 as follows:

1. (Currently Amended) An atomic layer deposition system comprising:

a) a deposition chamber;

b) a first reaction chamber being positioned in the deposition chamber, the first reaction chamber comprising solid walls that contain a first reactant species and a seal (comprising at least one of a sliding seal and a corrugated seal) that prevents the first reactant species from escaping, ~~that is positioned in the deposition chamber and that contains a first reactant species,~~ a monolayer of the first reactant species being deposited on a substrate passing through the first reaction chamber;

c) a second reaction chamber being positioned in the deposition chamber, the second reaction chamber comprising solid walls that contain a second reactant species and a seal (comprising at least one of a sliding seal and a corrugated seal) that prevents the second reactant species from escaping, ~~that is positioned in the deposition chamber, the second reaction chamber containing a second reactant species,~~ a monolayer of the second reactant species being deposited on a substrate passing through the second reaction chamber; ~~and~~

d) a vacuum pump having an input that is in vacuum communication with a region between the first and the second reaction chambers, the vacuum pump reducing pressure inside the region between the first and the second reaction chambers to a pressure that is less than a pressure inside the first and the second reaction chamber; and

e) a transport mechanism that transports a substrate in a path through the first reaction chamber and through the second reaction chamber at a constant transport rate, thereby depositing a film on the substrate by atomic layer deposition.

f) ~~wherein a shape of at least one of the first and the second reaction chambers is chosen to achieve a constant exposure of the substrate to a respective one of the first and the second reactant species when the transport mechanism transports the substrate in the path through the respective one of the first and the second reaction chamber at the constant transport rate.~~

2 (Original) The deposition system of claim 1 wherein a first and a second radial edge of at least one of the first and the second reaction chambers is aligned to a center of the deposition chamber.

3 (Original) The deposition system of claim 1 wherein at least one of the first and the second reaction chambers is formed in the shape of a trapezoid.

4 (Original) The deposition system of claim 1 further comprising a processing region that is positioned in the deposition chamber, a surface treatment being performed on a substrate passing through the processing region.

5 (Original) The deposition system of claim 1 wherein at least one of the first reaction chamber and the second reaction chamber comprises a plasma generator, the plasma generator generating a plasma in the at least one of the first and the second reaction chambers for plasma enhanced deposition.

6 (Currently Amended) The deposition system of claim 1 wherein the seal of at least one of the first reaction chamber and the second reaction chamber ~~comprises a seal that~~ is chosen from the group comprising a sliding seal, and a corrugated seal~~, and a gas curtain~~.

7 (Original) The deposition system of claim 1 wherein at least one of the first reaction chamber and the second reaction chamber comprises a differentially pumped interface.

8 (Original) The deposition system of claim 1 wherein the first reaction chamber comprises a first gas injection manifold and the second reaction chamber comprises a second gas injection manifold, the first and the second gas injection manifolds providing a respective one of the first and second reactant species to the first and the second reaction chambers.

9 (Original) The deposition system of claim 1 wherein the first reaction chamber and the second reaction chamber transport relative to the substrate.

10 (Currently Amended) An atomic layer deposition system comprising:

a) a deposition chamber;

b) a first reaction chamber being positioned in the deposition chamber, the first reaction chamber comprising solid walls that contain a first reactant species and a seal comprising at least one of a sliding seal and a corrugated seal that prevents the first reactant species from escaping, ~~that is positioned in the deposition chamber, the first reaction chamber containing a first reactant species,~~ a monolayer of the first reactant species being deposited on a substrate passing through the first reaction chamber;

c) a second reaction chamber being positioned in the deposition chamber, the second reaction chamber comprising solid walls that contain a second reactant species and a seal comprising at least one of a sliding seal and a corrugated seal that prevents the second reactant species from escaping, ~~that is positioned in the deposition chamber, the second reaction chamber containing a second reactant species,~~ a monolayer of the second reactant species being deposited on a substrate passing through the second reaction chamber;

d) a vacuum pump having an input that is in vacuum communication with a region between the first and the second reaction chambers, the vacuum pump reducing pressure inside the region between the first and the second reaction chambers to a pressure that is less than a pressure inside the first and the second reaction chamber;

e) a processing region that is positioned in the deposition chamber, a surface treatment being performed on a substrate passing through the processing region; and

f) a transport mechanism that transports a substrate in a path through the first reaction chamber, through the second reaction chamber, and through the processing region, thereby depositing a film on the substrate by atomic layer deposition.

11 (Original) The deposition system of claim 10 wherein a shape of at least one of the first and the second reaction chambers is chosen to achieve a constant exposure of the substrate to a respective one of the first and the second reactant species when the transport mechanism transports the substrate in the path through the respective one of the first and the second reaction chamber at a constant transport rate.

12 (Original) The deposition system of claim 10 wherein at least one of the first reaction chamber and the second reaction chamber comprises a plasma generator, the plasma generator generating a plasma in the at least one of the first and the second reaction region for plasma enhanced deposition.

13 (Currently Amended) The deposition system of claim 10 wherein the seal of at least one of the first reaction chamber and the second reaction chamber ~~comprises a seal that~~ is chosen from the group comprising a sliding seal, and a corrugated seal~~, and a gas curtain~~.

14 (Original) The deposition system of claim 10 wherein at least one of the first reaction chamber and the second reaction chamber comprises a differentially pumped interface that maintains a partial pressure in the at least one of the first and the second reaction chambers.

15 (Original) The deposition system of claim 10 wherein the first reaction chamber comprises a first gas injection manifold and the second reaction chamber comprises a second gas injection manifold, the first and the second gas injection manifolds providing a respective one of the first and second reactant species to the first and the second reaction chambers.

16 (Original) The deposition system of claim 15 wherein a shape of a respective one of the first and the second gas injection manifolds is chosen to provide a substantially constant flow of reactant species as the substrate passes through a respective one of the first and the second reaction chambers.

17 (Original) The deposition system of claim 10 wherein the processing region is formed in a shape that causes a substantially constant exposure of the surface treatment being performed on the substrate passing through the processing region.

18 (Original) The deposition system of claim 10 further comprising a plasma generator that generates a plasma in the processing region, the substrate passing through the processing region being exposed to the plasma, thereby performing the surface treatment.

19 (Original) The deposition system of claim 18 wherein the plasma generator comprises a magnetron that sputters a metal layer on the substrate passing through the processing region.

20 (Original) The deposition system of claim 18 wherein the plasma generator comprises a downstream plasma generator that is remotely located relative to the deposition chamber.

21 (Original) The deposition system of claim 10 further comprising an ion gun that generates an ion beam in the processing region, the ion beam striking the substrate passing through the processing region, thereby performing the surface treatment.

22 (Original) The deposition system of claim 10 further comprising an electron gun that generates an electron beam in the processing region, the electron beam striking the substrate passing through the processing region, thereby performing the surface treatment.

23 (Original) The deposition system of claim 10 further comprising an UV radiation source that generates UV radiation in the processing region, the UV radiation striking the substrate passing through the processing region, thereby performing the surface treatment.

24 (Original) The deposition system of claim 10 further comprising a substrate support that supports the substrate as the transport mechanism transports the substrate in the path through the first reaction chamber, through the second reaction chamber, and through the processing region.

25 (Original) The deposition system of claim 10 wherein the first reaction chamber, the second reaction chamber, and the process chamber are transported relative to the substrate.

26 (Original) The deposition system of claim 10 further comprising a third and a fourth reaction chamber that are positioned in the deposition chamber.

27 (Original) The deposition system of claim 26 wherein the third reaction chamber contains the first reactant species and the fourth reaction chamber contains the second reactant species, a monolayer of the first reactant species being deposited on a substrate passing through the third reaction chamber and a monolayer of the second reactant species being deposited on a substrate passing through the fourth reaction chamber.

28 (Original) The deposition system of claim 26 wherein the third reaction chamber contains a third reactant species and the fourth reaction chamber contains a fourth reactant species, a monolayer of the third reactant species being deposited on a substrate passing through the third reaction chamber and a monolayer of the fourth reactant species being deposited on a substrate passing through the fourth reaction chamber.

29 (Original) The deposition system of claim 10 wherein the transport mechanism transports a substrate in the path at a substantially constant rate.

30 (Original) The deposition system of claim 10 further comprising a port for transporting a substrate into and out of the deposition chamber.

31 (Original) The deposition system of claim 10 wherein a pressure in the deposition chamber is chosen to direct reactant gas and by-product gases away from the first reaction chamber and the second reaction chamber.

32 (Withdrawn) A method of atomic layer deposition, the method comprising:

a) transporting a substrate through a first reaction chamber containing a first reactant species, thereby forming a monolayer of the first reactant species on the substrate;

b) transporting a substrate through a second reaction chamber containing a second reactant species, thereby forming a monolayer of the second reactant species on the substrate; and

c) transporting a substrate through a processing region, thereby performing a surface treatment on the substrate.

33 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region is preformed before the transporting the substrate through the first

reaction chamber and before the transporting the substrate through the second reaction chamber.

34 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region is preformed after one of the transporting the substrate through the first reaction chamber and the transporting the substrate through the second reaction chamber and before the other of the transporting the substrate through the first reaction chamber and the transporting the substrate through the second reaction chamber.

35 (Withdrawn) The method of claim 32 wherein a substrate is transported through at least one of the first and the second reaction chambers at a substantially constant rate.

36 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region comprises exposing the substrate to a plasma.

37 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region comprises exposing the substrate to an ion beam.

38 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region comprises exposing the substrate to electron beam radiation.

39 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region comprises exposing the substrate to UV radiation.

40 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region comprises exposing the substrate to a non-reactive gas.

41 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region modifies a sticking coefficient on a surface of the substrate.

42 (Withdrawn) The method of claim 32 wherein the transporting the substrate through the processing region activates a reaction on a surface of the substrate.

43 (Withdrawn) The method of claim 32 wherein the method of atomic layer deposition deposits a seed layer on the surface of the substrate for sputter deposition.

44 (Currently Amended) An atomic layer deposition system comprising:

a) means for transporting a substrate through a first reaction chamber comprising solid walls that contain a first reactant species and a seal that prevents the first reactant species from escaping ~~containing a first reactant species~~, thereby forming a monolayer of the first reactant species on the substrate;

comprising at least one of a sliding seal and a corrugated seal

b) means for transporting a substrate through a second reaction chamber comprising solid walls that contain a second reactant species and a seal that prevents the second reactant species from escaping ~~containing a second reactant species~~, thereby forming a monolayer of the second reactant species on the substrate; ~~and~~

comprising at least one of a sliding seal and a corrugated seal

c) means for evacuating a region between the first and the second reaction chambers to a pressure that is less than a pressure inside the first and the second reaction chamber; and

d) means for transporting a substrate through a processing region, thereby performing a surface treatment on the substrate.

45 (New) The deposition system of claim 1 wherein the region between the first and the second reaction chambers comprises an interface between the first and the second reaction chambers.

46 (New) The deposition system of claim 10 wherein the region between the first and the second reaction chambers comprises an interface between the first and the second reaction chambers.